

AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph [0007] with the following amended paragraph:

[0007] Even if a member for fitting is devised so as not to move the apparatus, since a gap between left and right eyes differs depending on individuals and the relative position between the apparatus and the eye differs depending on viewers, it is difficult to provide the image display apparatus with high general-purpose properties. In order to provide the apparatus with which many people easily observe an image, it is necessary that the entire optical system including the light source through the eyepiece optical system is movable with respect to [[an]]a mounting member, and thus the structure becomes complicated, and the miniaturization and lightening become difficult.

Please replace paragraph [0012] with the following amended paragraph:

[0012] These and other objects, advantages and features of the invention will become apparent from the following description thereof taken in conjunction with the preferred embodiments with the reference to the accompanying drawings in which:

Fig. 1 is a diagram schematically showing an optical structure of an image display apparatus according to a first embodiment;

Fig. 2 is a diagram schematically showing a method of manufacturing a reflection type hologram provided to the image display apparatus according to the first embodiment;

Fig. 3A shows an example of a relationship between a wavelength of laser beam for exposure and absorptance of photosensitive materials in the case where two kinds of hologram photosensitive materials are used;

Fig. 3B is a diagram schematically showing a relationship between a wavelength and diffracting reflection efficiency in the obtained reflection type hologram;

Fig. 4 is a diagram schematically showing the optical structure of the image display apparatus according to a second embodiment;

Fig. 5 is a diagram schematically showing the method of manufacturing the reflection type hologram provided to the image display apparatus according to the second embodiment;

Fig. 6 is a diagram schematically showing the optical structure of the image display apparatus according to a third embodiment;

Fig. 7 is a diagram schematically showing the optical structure of the image display apparatus according to a fourth embodiment;

Fig. 8A is a diagram showing a sectional shape of illumination light in the case where the reflection type hologram provided to the image display device according to the embodiments has isotropic diffusing properties;

Fig. 8B is a diagram showing an example of the sectional shape of the illumination light in the case where the reflection type hologram has anisotropic diffusing properties;

Figs. 9A and 9B are diagrams showing a size of an observation pupil when the reflection type hologram has the diffusing properties of Fig. 8B and a position relationship between the observation pupils and eyes of a viewer;

Figs. 10A through 10D are diagrams schematically showing another other methods of manufacturing the reflection type hologram provided to the image display apparatus according to the embodiments;

Fig. 11 is a diagram schematically showing a part of the optical structure of the image display apparatus according to a fifth embodiment;

Fig. 12 is a diagram schematically showing a method of manufacturing the reflection type hologram provided to the image display apparatus according to a fifth embodiment;

Fig. 13 is a diagram schematically showing the entire optical structure of the image display apparatus according to the fifth embodiment;

Fig. 14 is a diagram schematically showing a method of manufacturing the reflection type hologram as an eyepiece optical system provided to the image display apparatus according to the fifth embodiment;

Fig. 15 is a perspective view showing an outline when the image display apparatus according to the fifth embodiment is of a glass type;

Fig. 16 is a sectional view of the image display apparatus according to the fifth embodiment; and

Fig. 17 is a diagram schematically showing the optical structure of a prior image display apparatus.

Please replace paragraph [0036] with the following amended paragraph:

[0036] The method of manufacturing the reflection type hologram 330 is the same as that in the second embodiment (Fig. 5). The pinhole and the lens which change the laser beam La on the side of the photosensitive material [[330b]] into the divergent light are arranged on the position provided with the LED 12 at the time of use, and an optical path with small diameter of the laser beam for guiding the light to the pinhole and the lens are made to coincide with the optical path of the principal ray of the LED 12.

Please replace paragraph [0039] with the following amended paragraph:

[0039] As the first polarizing element 17, an absorption polarizing filter, a reflection polarizing filter, a polarizing beam splitter or the like can be used, but particularly the reflection polarizing filter is preferable. This is because the first linearly polarized light Lp1 which returns to the LED 12 can be reutilized, and the use efficiency of the light is heightened. As the second polarizing element 18, an absorption polarizing plate, a reflection polarizing plate and the like can be used. A polarizing plate (not shown) on the incident side provided on the liquid crystal display 11 can be commonly used as the second polarizing element 18.

Application No. 10/602,289
Amendment dated April 10, 2006
Reply to Office Action of January 10, 2006

Please replace paragraph [0043] with the following amended paragraph:

[0043] A diffracting angle (diffusing properties) of the reflection type holograms 13, 230, 330, 430 may be enlarged in a direction of a nodal line between [[an]]a plane and the reflection type holograms 13, 230, 330, 430. The plane includes the center of the liquid crystal display 11, the light emitting diode 12 (an emitting point) and the center of the reflection type holograms 13, 230, 330, 430. As a result, even if a slight error is generated in the alignment of the reflection type holograms 13, 230, 330, 430 with respect to the liquid crystal display 11 and the alignment of the light emitting diode 12 with respect to the reflection type holograms 13, 230, 330, 430, the eye of the viewer falls within the observer pupil, thereby lowering the accuracy necessary for assembly and thus improving the manufacturing efficiency.

Please replace paragraph [0044] with the following amended paragraph:

[0044] When the reflection type holograms 13, 230, 330, 430 are manufactured, in stead instead of that the diffusing plate 16 is arranged close to the primary bodies 13a, 230a, 330a, 430a as shown in Figs. 2 and 5, an image 16' of the diffusing plate 16 is formed by the convex lens 20 or the like as shown in Fig. 10A-D, and the laser beam after the imaging and the laser beam before the imaging may be used as one laser beam Lb. As a result, the reflection type holograms 13, 230, 330, 430 reproduce the image 16' of the diffusing plate 16.

Please replace paragraph [0045] with the following amended paragraph:

[0045] As [[sown]]shown in Fig. 10A, when the image 16' of the diffusing plate 16 is formed between the diffusing plate 16 and the primary bodies 13a, 230a, 330a, 430a, light which is equivalent to the light arrived from the diffusing plate positioned farther than the reflection type hologram 13 is obtained at the time of use. The lens 21 for changing the laser beam La into the divergent light is, as

Application No. 10/602,289
Amendment dated April 10, 2006
Reply to Office Action of January 10, 2006

explained above, arranged in the position provided with the LED 12 at the time of use. In Fig. 10A and Figs. 10B through 10D described below, when the reflection type hologram 13 is manufactured, a lens for generating a parallel light may be used suitably.